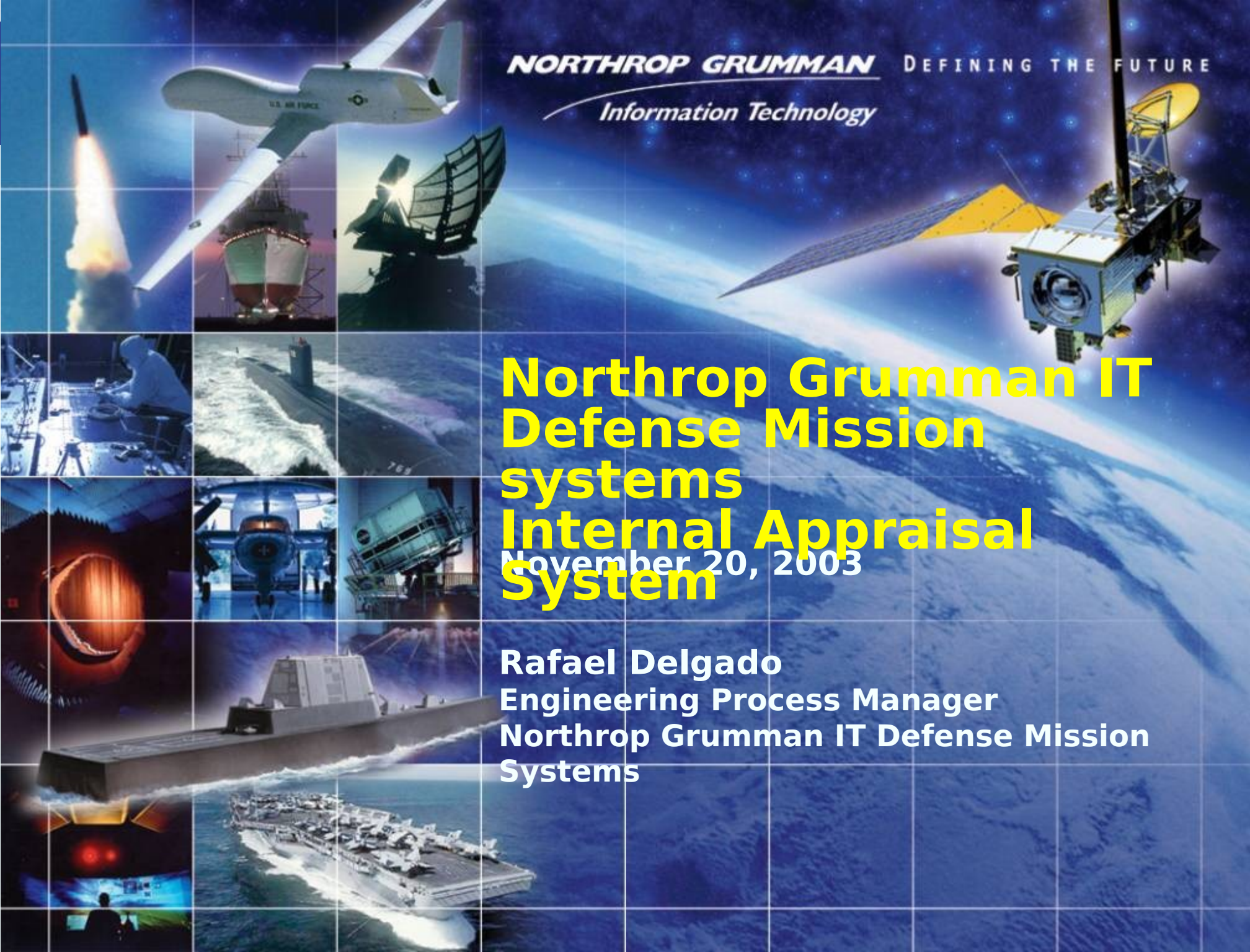

Northrop Grumman IT Defense Mission systems Internal Appraisal System

November 20, 2003

Rafael Delgado
Engineering Process Manager
Northrop Grumman IT Defense Mission Systems

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Purpose of this Presentation

- **Provide an overview of Northrop Grumman IT, Defense Mission Systems CMMI Internal Appraisals Program**
- **Share the experience gained from building and operating the Internal Appraisal System**
- **Show how we collect model-compliance information and measure CMMI and OSSP compliance**
  - **Model Compliance**
  - **Aging**
  - **Process Area Coverage**
  - **Action Items**
  - **Process Improvement**

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Agenda

- **Organizational Context**
  - **4 minute**
- **Internal Appraisal Program**
  - **5 minutes**
- **Internal Appraisal System**
  - **15 minutes**
- **Summary**
  - **5 minutes**
- **Backup Slides**
  - **1 minute**

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Northrop Grumman Sectors

- C⁴ISR
- Enterprise Solutions
- Homeland Security
- Government IT Infrastructure
- Science & Technology
- Information Security/ Assurance

- Command, Control and Intelligence
- Digitized Battlefield
- ICBM Sys. Mgmt.
- Missile Defense BMC³
- Defense/Civil Software Application Dev.
- Information Warfare

- Airborne Radars
- C⁴ISR
- Electronic Warfare
- Navigation & Guidance
- Military Space
- Homeland Security

- Tactical Aircraft
- Long Range
- Unmanned
- Airborne Early Warning & Surveillance
- Air-to-Ground Surveillance
- Airborne Jamming

- Naval Systems Integrator
- Aircraft Carriers
- Attack Submarines
- Surface Combatants
- Amphibious Assault Ships
- Auxiliary Ships

- Intelligence, Surveillance, Reconnaissance
- Laser Weapons
- Military SATCOM
- Scientific Satellites
- Military Avionics
- Cutting-edge Micro-electronics

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Northrop Grumman IT-Defense Mission Systems Profile

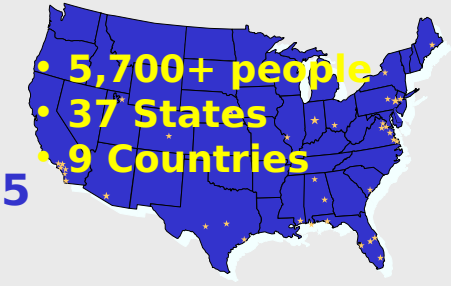
- C⁴ISR
- Enterprise Solutions
- Homeland Security
- Government IT Infrastructure
- Science & Technology
- Information Security/ Assurance

- **Mission:** DMS is a leading supplier of mission-critical C4I systems, technology solutions and engineering services

- **Key disciplines**
  - Systems development and integration
  - Systems and sustaining engineering
  - Platforms and systems interoperability engineering

- **Customers**
  - Department of Defense: Air Force, Navy, Army, USMC, Joint and Unified Commands
  - Department of Homeland Security: USCG
  - International: NATO and allied countries

- **Major US Locations**
  - Virginia – 1,900
  - California – 1,300
  - DC and Maryland – 475
  - Nebraska – 350



Process Improvement Maturity Level: CMMI Level 5, November 2003 SCAMPI

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DMS Engineering Process Improvement Program Challenges – Last 2 years

- **Organizational**
  - **New acquisitions, reorganizations, and consolidations**
  - **Geographically dispersed projects, staffs and functional domains**
  - **OSSP change and consolidation of 12 legacy processes**
  - **Transition to the CMMI**

- **Internal and external appraisals readiness and execution**
  - **CMMI Level 5 DMS-wide SCAMPI**
  - **Procurement and Contract-directed SCEs and SCAMPI**
    - **Responsive to the dynamic requirements of procurements/RFPs and customers**
    - **Demonstrate compliance at multiple locations**

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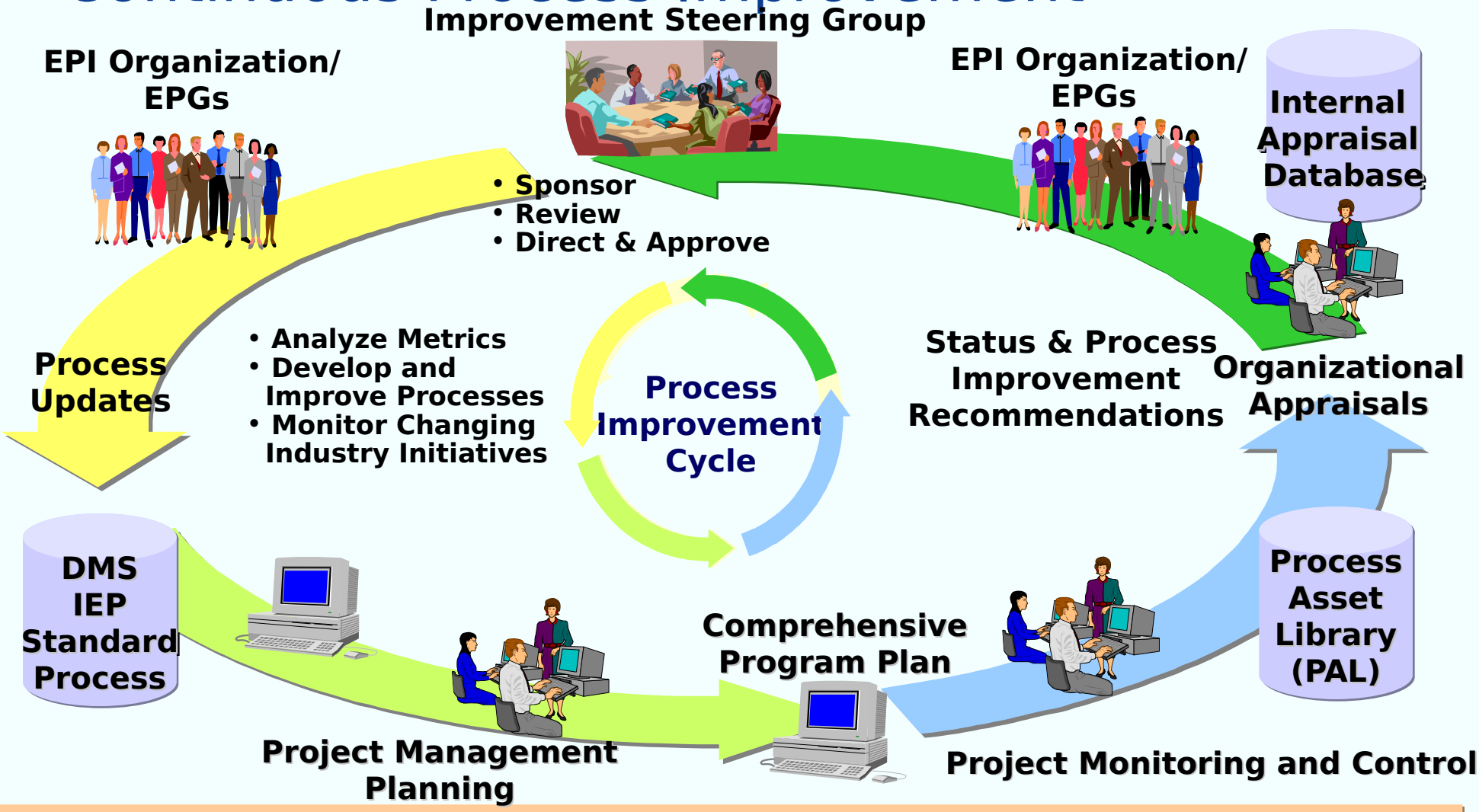
Continuous Process Improvement



The DMS Engineering Process Improvement Organization with support from the EPGs facilitates and enables process improvement throughout the project lifecycle

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Agenda

- **Introduction**
  - **1 minute**
- **Internal Appraisal Program**
  - **5 minutes**
- **Internal Appraisal System**
  - **15 minutes**
- **Conclusion, Questions**
  - **5 minutes**
- **Backup Slides (summary)**
  - **1 minute**

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Internal Appraisal Program - Scope

- **Provides an assessment of CMM / CMMI process areas compliance**
  - **Compliance with the organization's set of standard processes**
    - **OSSP = Policy (Command Media) and Process (DMS Integrated Enterprise Process)**
  - **Strengths, weaknesses and planned improvements are documented**
    - **Action items or audit points assigned**
- **Supports CMM (SCE) / CMMI (SCAMPI) appraisals**
  - **Compliance documentation, evidence preparation, candidate preparation, and appraisal conduct.**
- **Does not provide a CMM or CMMI level**

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Internal Appraisal Program - Background

- **Best Practice for over 10 years**
  - **Evolved from OSSP process compliance audits to CMM Evaluations to CMMI Appraisals**
- **Administered by the DMS EPG**
  - **DMS EPG provides trained appraisers and OSSP expertise**
    - **5 full-time EPG work as Internal Appraisers**
    - **25 part-time Internal Appraisers**
  - **IT sector EPG provides policy and standards**
- **A responsible appraisal POC (PM, Local EPG) and appraiser (DMS EPG) are identified**
  - **POC collects data and provides access to project information**
  - **Appraiser provides verification of information and model compliance appraisal**

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Internal Appraisal - Methodology

- **Process Maturity Appraisal work instruction**
  - **Defines the sequence of events and work products for an assessment, using the SCAMPI approach.**
- **SCAMPI methodology for CMMI Internal Appraisal**
  - **Scaled to fit appraisal team size and service level**
- **SCE methodology for CMM Internal Appraisals**
  - **Scaled to fit appraisal team size and service level**
- **Internal Appraisals occur every 3-6 months**
  - **Last approximately 1-3 days, depending on scope**
- **Service Level agreement**
  - **Level of effort per project is scaled as needed**
  - **Higher scores and up-to-date aging mean fewer appraisals**

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Appraisal Data Collection History

Appraisals have been conducted and documented using a number of techniques and tools and evolved towards a collaborative environment

- **Paper**
  - **MS Word documents**
- **Diskette**
  - **MS Excel spreadsheets**
- **Laptops**
  - **MS Access database**
- **Intranet (collaborative environment)**
  - **SQL Server**
    - **Supports our Appraisal Database**
  - **Lotus Notes**
    - **Supports our EPI Internet Site**
  - **Integrated Knowledge Environment**
    - **Supports our shared data collection needs**

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Agenda

- **Organizational Context**
  - **4 minute**
- **Internal Appraisal Program**
  - **5 minutes**
- **Internal Appraisal System**
  - **15 minutes**
- **Summary**
  - **5 minutes**
- **Backup Slides**
  - **1 minute**

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Engineering Process Improvement intranet - eprocess

- **Started in 1997 with a commitment to the intranet approach**
  - **Use Northrop Grumman Internal Information Systems**
  - **Provide a dedicated server for the EPG and SQL-based system**
  - **Allow 24/7 availability**
  - **Perform Nightly Backups = no lost data**
  - **Link analyzer to identify dead links**
  - **High degree of administrative control by the EPG**
- **Process Documentation**
- **Process Assets and Example Work Products**
- **Research, Training, Tools, Measurement and Sites**
- **Internal Appraisal Database**

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*e*process Background

- **Development Environment**
  - **eprocess site: Lotus Notes**
    - **Transition to .NET in 2004**
  - **Appraisal Database: SQL Server (Microsoft)**
    - **Uses Java script, XML, HTML**

- **Main Development Concepts**
  - **Start small and build up capability**
  - **Allow for user-maintained data**
  - **Support distributed data collection**
  - **Support multiple organizations**
  - **Minimize the number of data entry screens**

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Internal Appraisal System - Characteristics

- **Provides immediate access to project and organizational CMM and CMMI compliance status**
  - **Visibility through eprocess**
  - **Projects participate in the data collection effort**
  - **Users can add data to the appraisal database**
  - **Allows online access to appraisal data for multiple projects**
  - **e-mail reminders for out-of-date aging information and for past-due action items**
- **Projects reference planning and work product information**
  - **Artifacts listed as examples on the organizational section**
  - **Actual artifacts listed with the project information**
  - **URL links created to the PAL or other intranet servers**

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Development Documentation

- **Documented Requirements are in use cases**

3.0 Use Cases

The following template is used for Step 3 in the Use Case elicitation process

Use Cases

Name	Data Entry
	Use Case ID# 1.0 | Date: 6/24/2003

Summary	Provide a module for the PAL administrator and Project Representatives to maintain system data that will be stored in the database and used by PAL users.
	
	The following is a list of data entry options:
	▪ Project Categories
	  ▪ Add, Edit, Delete
	▪ Process Areas
	  ▪ Add, Edit, Delete
	▪ Practices
	  ▪ Add, Edit, Delete
	▪ Procedures
	  ▪ Add, Edit, Delete, Artifact Identification
	▪ Project Information
	  ▪ Add, Edit, Delete, Artifact Identification,
	▪ Evaluations
	▪ Artifact Identification
	  ▪ Examples, Practice Level, Project Level

Initiating Actor	PAL Administrator
Participating Actor	PAL Administrator, System Application.
Pre-Conditions	The Administration menu option appears on the pull down This Administration menu is only accessible by the PAL a
Event Flow	Description The PAL administrator is presented with options to perfor the database when the Administration option on the Asse If the PAL administrator chooses the Data Entry option fo appropriate screen is displayed as described in Use Case If the PAL administrator chooses the Data Entry option fo
	If the PAL administrator chooses the Data Entry option for Practices, the appropriate screen is displayed as described in Use Case #1.3. If the PAL administrator chooses the Data Entry option for Procedures, the appropriate screen is displayed as described in Use Case #1.4. If the PAL administrator chooses the Data Entry option for Project Information, the appropriate screen is displayed as described in Use Case #1.5. If the PAL administrator chooses the Data Entry option for Evaluations, the appropriate screen is displayed as described in Use Case #1.6. If the PAL administrator chooses the Data Entry option for Artifact Identification, the appropriate screen is displayed as described in Use Case #1.7.
Expected Outcome	The option selected is displayed according to the documented use case.
Post-conditions	
Exceptions	The PAL administrator cannot maintain the option menu because the menu contains system functionality and should only be maintained by the system administrators. PAL users will only be able to

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System Functions

- **Administrative System**
- **Organizational Data**
- **Project Profile**
- **Internal Appraisal Schedule**
- **Documentation Matrix**
- **Appraisal Summary**
- **Action Items**
- **Appraisal Report**
  - **Compliance Report**
  - **Aging Report**
  - **PIIDs**

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System Administration

- **Administrators**
  - **Provide controlled access using existing Northrop Grumman password system**
    - **Update the list of users and appraisers**
  - **Provide content updates to organizational data files**
    - **Changes to the organizational section are immediately updated on all project documentation matrices.**
    - **Supports up-to-date communication of the OSSP information**
- **Users**
  - **200+ current users**
  - **Contribute to project information, without scoring.**
- **Appraisers**
  - **25 Appraisers**
  - **Control project scoring information, appraisal summary information, and action items.**

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Organizational Data Files

- **CMMI**
  - **Supports SE/SW/IPPD model and can be expanded for SA**
  - **Process Areas & Goals descriptions can be edited or improved**
  - **Policy, DMS IEP, and organizational process cross-reference provided**
- **CMM**
  - **Supports through CMM for Software through Level 5**
  - **Key Process Areas & Goals descriptions can be edited or improved**
  - **Policy, DMS IEP, and organizational process cross-reference provided**
- **CMM / CMMI data**
  - **Cross-references between CMM and CMMI are included**
- **Integrated with DMS and IT Sector policy and OSSP**
  - **Links provided to policy, procedure and work instruction**

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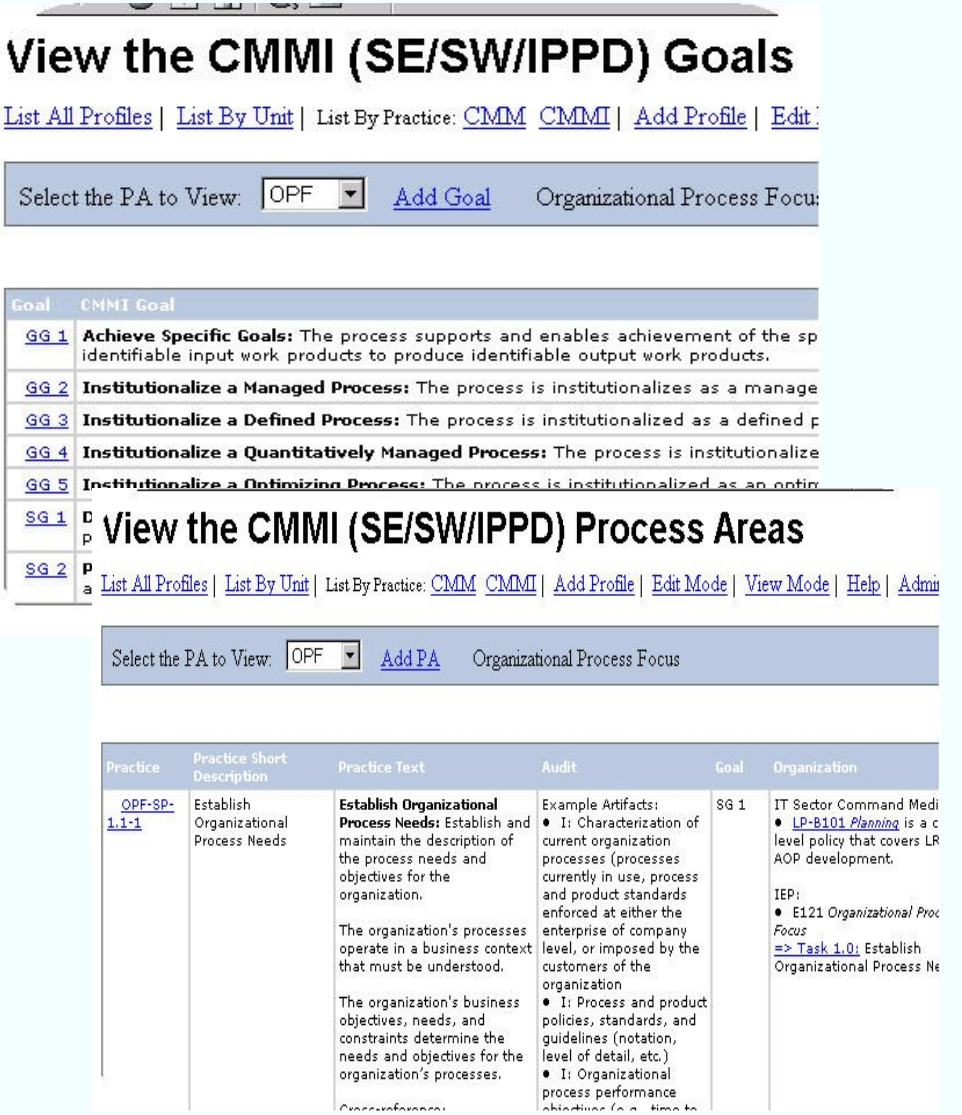
Organizational Data Files

- **Create a Goal Table for each Process Area**
  - **Process Area**
  - **Goal ID**
  - **Goal text**
- **Create a Practice Table for each process area:**
  - **Practice ID**
  - **Practice Short Description**
  - **Practice Text**
  - **Audit (Example artifacts)**
  - **Goal (from the Goal table)**
  - **Organization**
  - **Artifacts (Practice-Level)**


View the CMMI (SE/SW/IPPD) Goals
List All Profiles | List By Unit | List By Practice: CMM CMMI | Add Profile | Edit
Select the PA to View: OPF Add Goal Organizational Process Focu
Goal CMMI Goal
GG 1 Achieve Specific Goals: The process supports and enables achievement of the sp identifiable input work products to produce identifiable output work products.
GG 2 Institutionalize a Managed Process: The process is institutionalizes as a manage
GG 3 Institutionalize a Defined Process: The process is institutionalized as a defined p
GG 4 Institutionalize a Quantitatively Managed Process: The process is institutionalize
GG 5 Institutionalize a Optimizing Process: The process is institutionalized as an optim
SG 1
SG 2
View the CMMI (SE/SW/IPPD) Process Areas
List All Profiles | List By Unit | List By Practice: CMM CMMI | Add Profile | Edit Mode | View Mode | Help | Admi
Select the PA to View: OPF Add PA Organizational Process Focus
Practice
Practice Short Description
Practice Text
Audit
Goal
Organization
OPF-SP-1.1-1
Establish Organizational Process Needs
Establish Organizational Process Needs: Establish and maintain the description of the process needs and objectives for the organization.
The organization's processes operate in a business context that must be understood.
The organization's business objectives, needs, and constraints determine the needs and objectives for the organization's processes.
Example Artifacts:
I: Characterization of current organization processes (processes currently in use, process and product standards enforced at either the enterprise of company level, or imposed by the customers of the organization
I: Process and product policies, standards, and guidelines (notation, level of detail, etc.)
I: Organizational process performance
SG 1
IT Sector Command Medi
LP-B101 Planning is a c level policy that covers LR AOP development.
IEP:
E121 Organizational Proc Focus
=> Task 1.0: Establish Organizational Process Ne

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Appraisal Tasks

- **Create a Project Profile database**
  - **Select Projects by Operating Unit, Project Name**
- **Categorize projects**
  - **External Appraisal Project**
  - **Process Improvement Project**
  - **Sustaining Project**
- **Customer information**
- **Project characteristics**
- **Contacts**
- **Project Description**

Project Profile
List All Profiles | List By Unit | Add Profile | Edit Mode | View Mode | Help | Admin | Home
Project Name: Process Improvement Projects
Target Process Capability: Process Improvement Evaluation Project
Application Domain: Software Development
Project Type: Cost Plus Award Fee
Customer: U.S. Department of Defense
Planned Phases:
Development Process Implementation
System Requirements Analysis
System Architectural Design
Software Requirements Analysis
Software Architectural Design
Software Detailed Design
Software Coding and Testing
Software Integration
Software Qualification Testing
System Integration
System Qualification Testing
Software Installation
Software Acceptance Support

A single profile connects to CMM and CMMI databases

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Internal Appraisal schedule

- **Internal Appraisers can determine their**

Integrated Enterprise Process
IT Sector Internal Network
IT Sector Engineering Process S.
Appraisal | Assets | Training | Process | Legacy | Measurements | Standards | Research | Tools | Sites
Home | Back | Forward | Expand | Collapse | Search | New Entry
Appraisal Event Tracking System
Event Start Date
Event Title
Point of Contact
Phone
Email
Schedule
09/22/2003
09/22/2003
Integrated Enterprise Process
IT Sector Internal Network
IT Sector Engineering Process Site
Appraisal | Assets | Training | Process | Legacy | Measurements | Standards | Research | Tools | Sites
Appraisal
CMM Appraisals (SW)/CMMI Appraisals (SE/SW/IPPD)
Appraisal Schedule
The DMS EPG conducts periodic appraisals to determine the engineering process capability of the business unit. CMMI/CMM-based appraisals verify that activities are performed and work products are produced in support of compliance with the sector and business unit policies. The DMS Engineering Process Improvement Plan (EPIP) specifies the frequency of organizational appraisals of projects and the development of action plans to address the assessment findings. Appraisal data is maintained through this intranet-based appraisal system. Appraisal reports should be filed with the EPG and added to the journal.
Projects will be assessed against the CMMI and directed to use the DMS IEP as part of their project. This strategy allows for minimal disruption of current projects, while continuing process improvement and risk mitigation efforts.
To schedule a CMM or CMMI appraisal contact Rafael Delgado at (703) 556-2003
M Appraisals will be conducted in accordance wit

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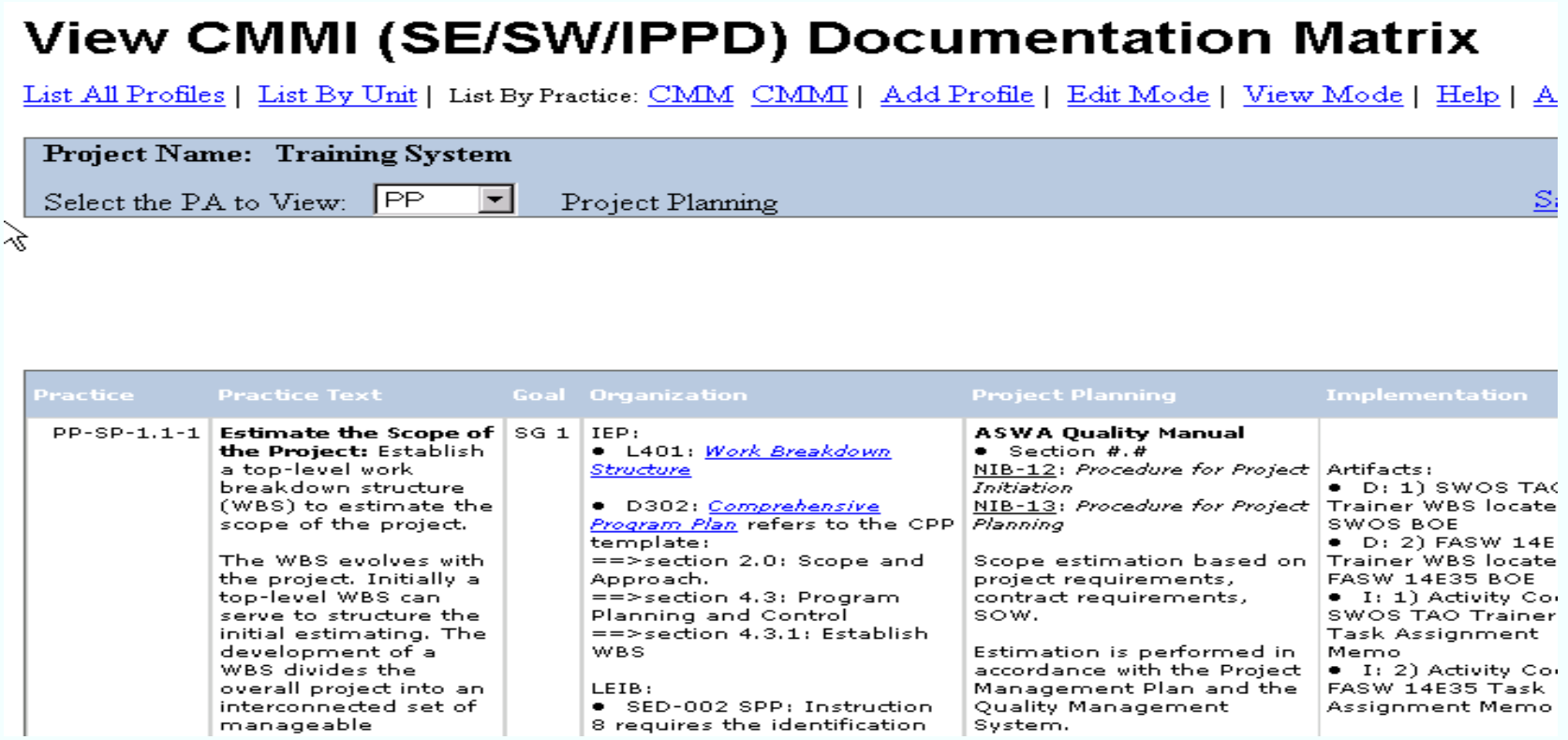
Documentation Matrix

- **Project Plans, Implementation, Evidence**
- **Most often used input screens**
  - **List by Process Area within one project**
  - **List by Practice across all projects**



View CMMI (SE/SW/IPPD) Documentation Matrix

List All Profiles | List By Unit | List By Practice: CMM CMMI | Add Profile | Edit Mode | View Mode | Help | A

Project Name: Training System

Select the PA to View: PP Project Planning

Practice	Practice Text	Goal	Organization	Project Planning	Implementation
PP-SP-1.1-1	**Estimate the Scope of the Project:** Establish a top-level work breakdown structure (WBS) to estimate the scope of the project. The WBS evolves with the project. Initially a top-level WBS can serve to structure the initial estimating. The development of a WBS divides the overall project into an interconnected set of manageable	SG 1	IEP: • L401: *Work Breakdown Structure* • D302: *Comprehensive Program Plan* refers to the CPP template: ==>section 2.0: Scope and Approach. ==>section 4.3: Program Planning and Control ==>section 4.3.1: Establish WBS LEIB: • SED-002 SPP: Instruction 8 requires the identification	**ASWA Quality Manual** • Section #.# NIB-12: *Procedure for Project Initiation* NIB-13: *Procedure for Project Planning* Scope estimation based on project requirements, contract requirements, SOW. Estimation is performed in accordance with the Project Management Plan and the Quality Management System.	Artifacts: • D: 1) SWOS TA Trainer WBS locate SWOS BOE • D: 2) FASW 14E Trainer WBS locate FASW 14E35 BOE • I: 1) Activity Co SWOS TAO Trainer Task Assignment Memo • I: 2) Activity Co FASW 14E35 Task Assignment Memo

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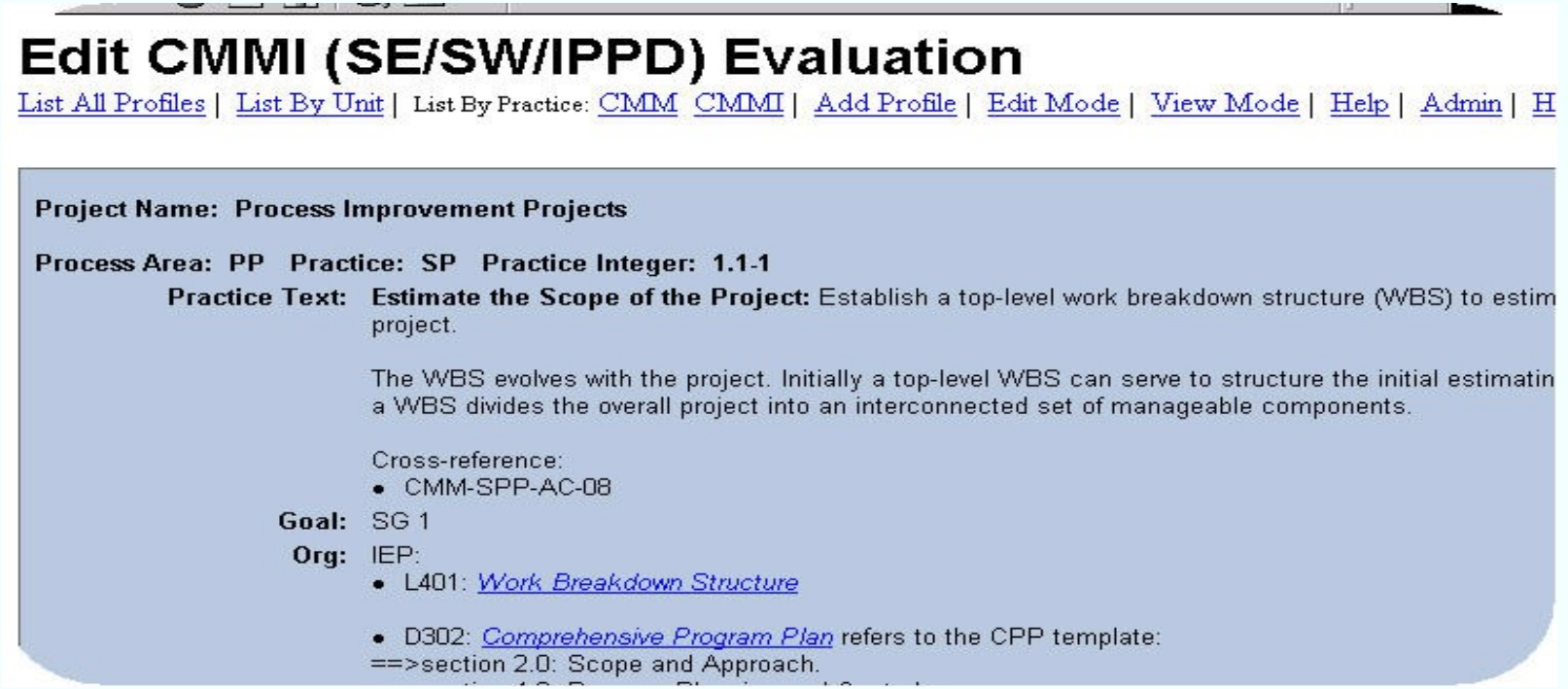
Documentation Matrix data

- **Process Area**
- **Practice**
- **Practice Text**
- **Goal**
- **Organization**



Edit CMMI (SE/SW/IPPD) Evaluation

List All Profiles | List By Unit | List By Practice: CMM CMMI | Add Profile | Edit Mode | View Mode | Help | Admin | H

Project Name: Process Improvement Projects

Process Area: PP Practice: SP Practice Integer: 1.1-1

Practice Text: **Estimate the Scope of the Project:** Establish a top-level work breakdown structure (WBS) to estim project.

The WBS evolves with the project. Initially a top-level WBS can serve to structure the initial estimatin a WBS divides the overall project into an interconnected set of manageable components.

Cross-reference:
- CMM-SPP-AC-08

Goal: SG 1

Org: IEP:
- L401: *Work Breakdown Structure*

- D302: *Comprehensive Program Plan* refers to the CPP template: ==>section 2.0: Scope and Approach.

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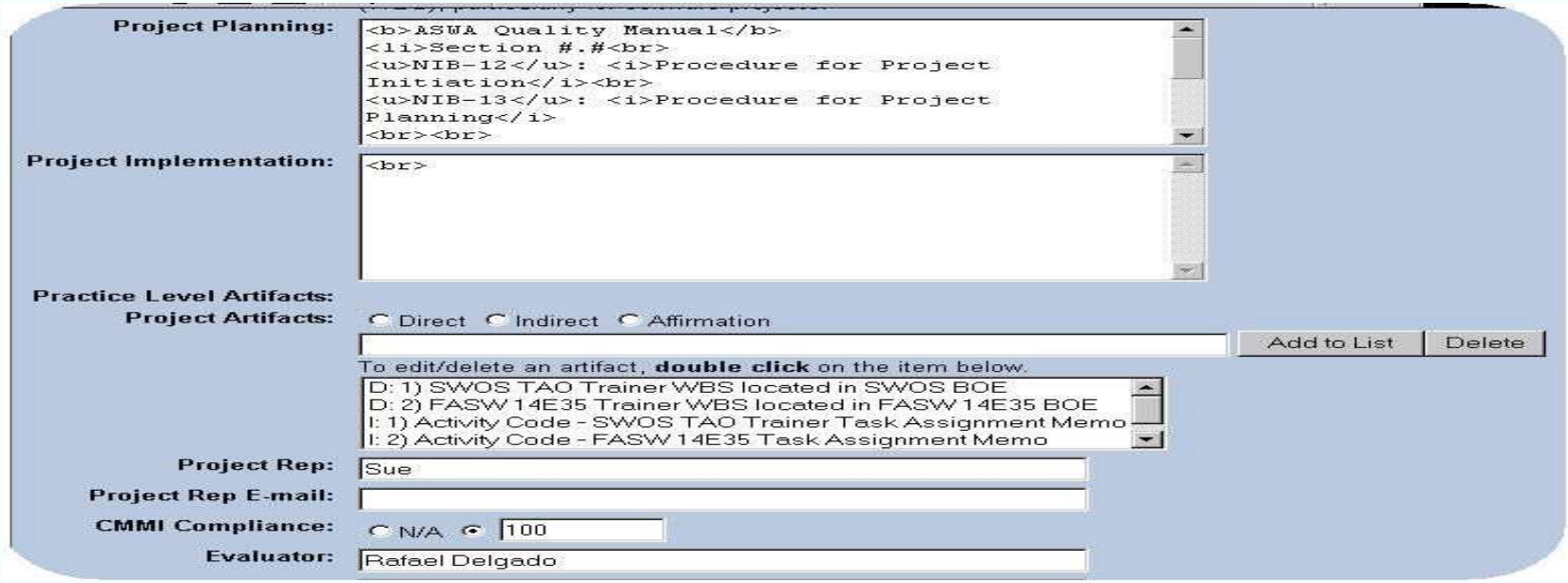
Documentation Matrix data

- **Project Planning**
- **Project Implementation**
- **Practice-Level Artifacts**
- **Project Level Artifacts**
  - **Direct**
  - **Indirect**
  - **Affirmation**



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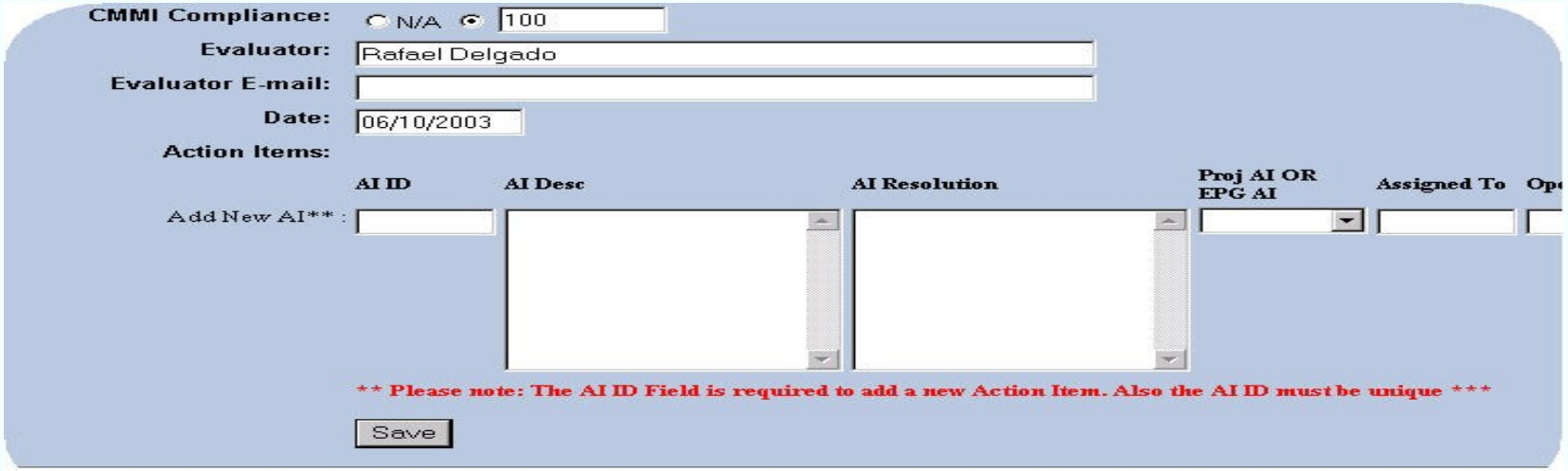
Documentation Matrix data

- **Project Representative**
- **Project Representative e-mail**
- **CMMI Compliance (0-100) or N/A**
- **Evaluator**
- **Evaluator e-mail**
- **Data**
- **Action Items**
  - **ID, description, resolution, assignment, closure dates**



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Scoring

- **Internal Appraisal System uses numeric scoring**
  - **Using the "by-thirds" method of scoring each practice**
  - **100, 90, 60, 30, 0, N/A**
  - **Calculates an average score per goal**
- **Color-coded appraisal results by Process Area and Practice**
  - **100 - 95** **Blue** **(Fully Implemented)**
  - **90 - 94** **Green** **(Largely implemented)**
  - **80 - 89** **Yellow** **(Partially implemented)**
  - **80 or Below** **Red** **(Not Implemented)**
  - **N/A** **Not included in reports or averages**
- **SCAMPI Methodology Scoring, by contrast**
  - **Not numeric**
  - **FI, LI, PI, NI, N/A**
  - **Does not have an algorithm to roll-up scores**

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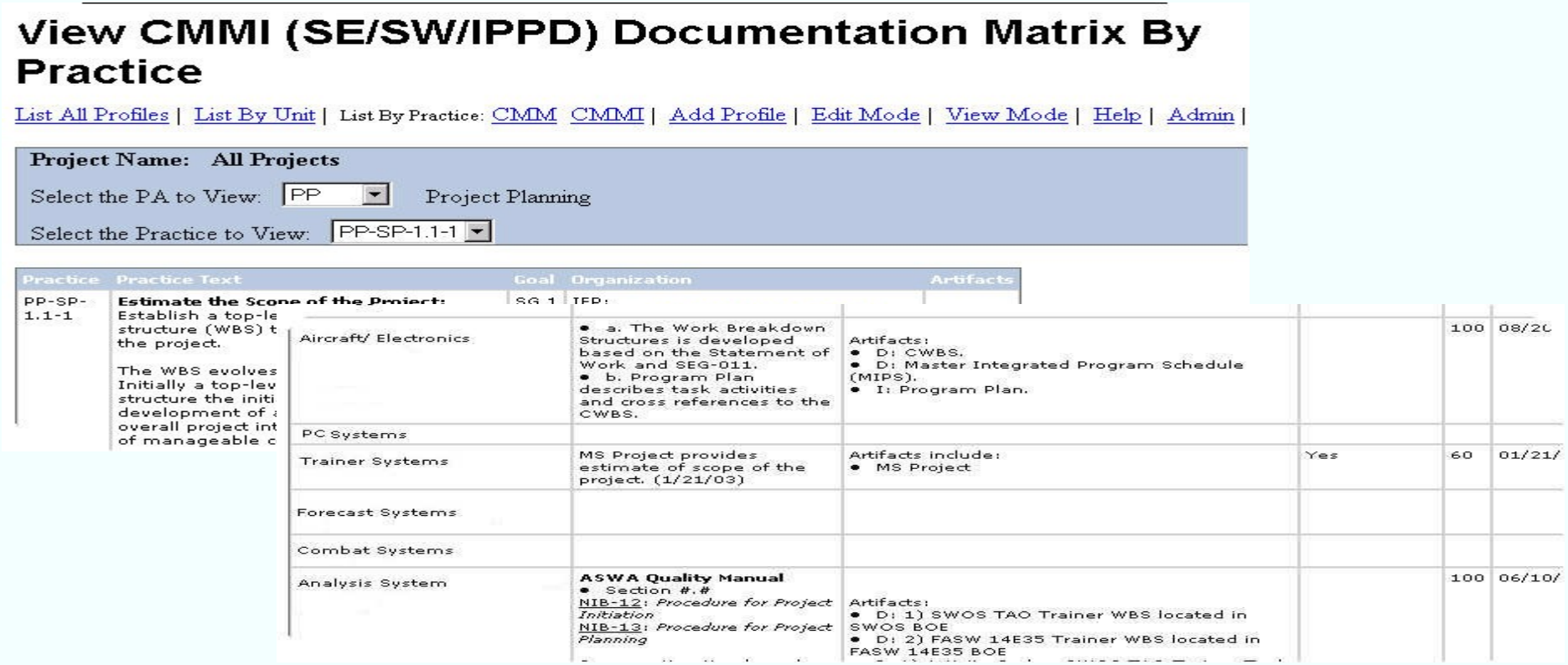
Documentation Matrix Views

- **Project Plans, Implementation, Evidence**
  - **List by Practice across all projects**
  - **Compare the responses of all DMS projects to a practice**



View CMMI (SE/SW/IPPD) Documentation Matrix By Practice

List All Profiles | List By Unit | List By Practice: CMM CMMI | Add Profile | Edit Mode | View Mode | Help | Admin |

Project Name: All Projects

Select the PA to View: PP Project Planning

Select the Practice to View: PP-SP-1.1-1

Practice	Practice Text	Goal	Organization		Artifacts		
PP-SP-1.1-1	**Estimate the Scope of the Project:** Establish a top-le structure (WBS) t the project. The WBS evolves Initially a top-lev structure the initi development of overall project int of manageable c	SG 1	IPD:				
	Aircraft/ Electronics		• a. The Work Breakdown Structures is developed based on the Statement of Work and SEG-011. • b. Program Plan describes task activities and cross references to the CWBS.		Artifacts: • D: CWBS. • D: Master Integrated Program Schedule (MIPS). • I: Program Plan.		100 08/20
	PC Systems						
	Trainer Systems		MS Project provides estimate of scope of the project. (1/21/03)		Artifacts include: • MS Project	Yes	60 01/21/
	Forecast Systems						
	Combat Systems						
	Analysis System		**ASWA Quality Manual** • Section #.# NIB-12: *Procedure for Project Initiation* NIB-13: *Procedure for Project Planning*		Artifacts: • D: 1) SWOS TAO Trainer WBS located in SWOS BOE • D: 2) FASW 14E35 Trainer WBS located in FASW 14E35 BOE		100 06/10/

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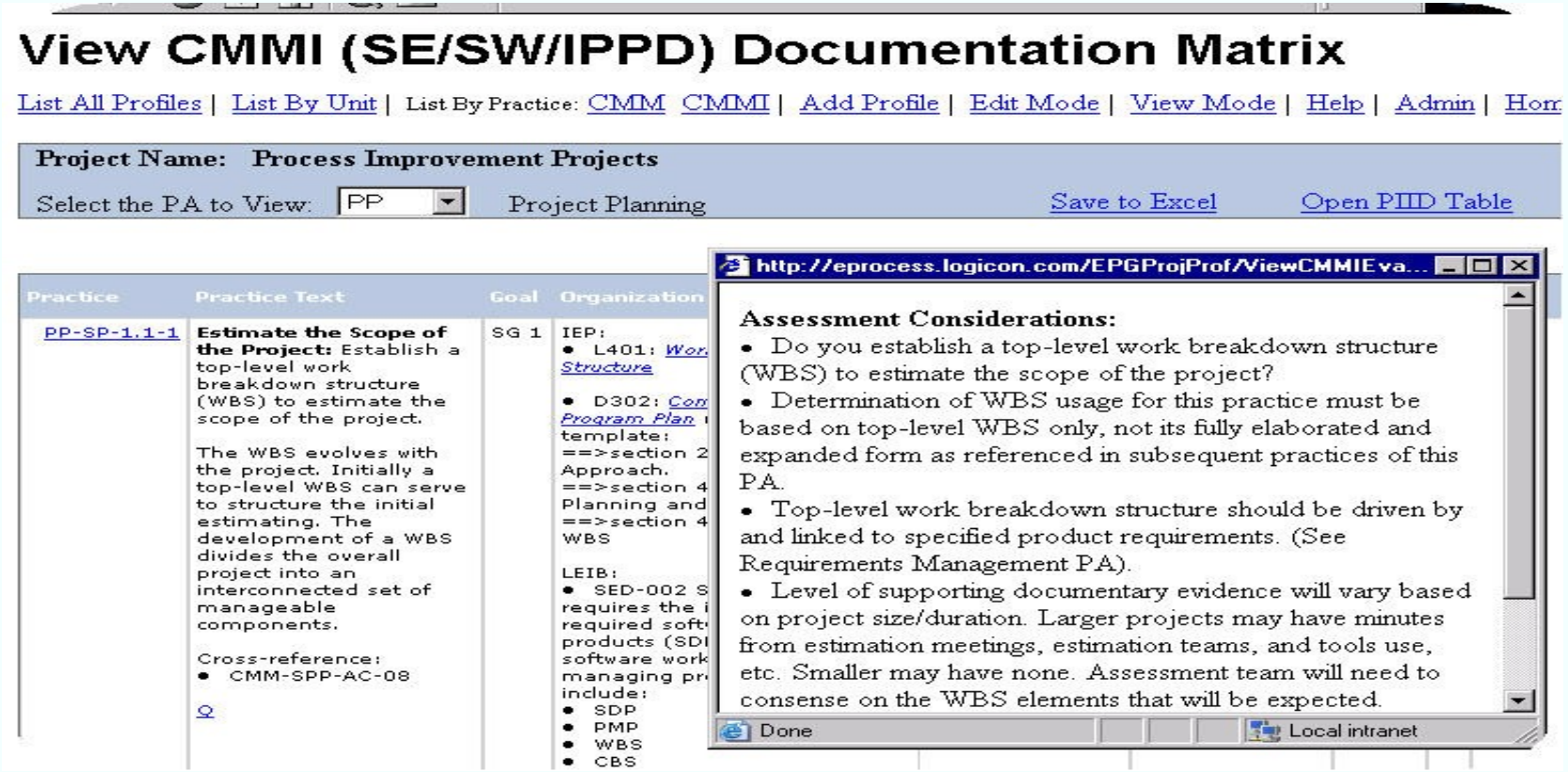
Documentation Matrix Views

- **Project Plans, Implementation, Evidence**
  - **"Question" Screens**
  - **Provide appraisal information from the PIID "Assessment Considerations" Section**


View CMMI (SE/SW/IPPD) Documentation Matrix
List All Profiles | List By Unit | List By Practice: CMM CMMI | Add Profile | Edit Mode | View Mode | Help | Admin | Hom
Project Name: Process Improvement Projects
Select the PA to View: PP Project Planning
Save to Excel
Open PIID Table
Practice
Practice Text
Goal
Organization
PP-SP-1.1-1
Estimate the Scope of the Project: Establish a top-level work breakdown structure (WBS) to estimate the scope of the project.
The WBS evolves with the project. Initially a top-level WBS can serve to structure the initial estimating. The development of a WBS divides the overall project into an interconnected set of manageable components.
Cross-reference:
• CMM-SPP-AC-08
SG 1
IEP:
• L401:
Structure
• D302:
Program Plan
template:
==>section 2
Approach.
==>section 4
Planning and
==>section 4
WBS
LEIB:
• SED-002 S
requires the i
required soft
products (SDI
software work
managing pr
include:
• SDP
• PMP
• WBS
• CBS
http://eprocess.logicon.com/EPGProjProf/ViewCMMIEva...
Assessment Considerations:
• Do you establish a top-level work breakdown structure (WBS) to estimate the scope of the project?
• Determination of WBS usage for this practice must be based on top-level WBS only, not its fully elaborated and expanded form as referenced in subsequent practices of this PA.
• Top-level work breakdown structure should be driven by and linked to specified product requirements. (See Requirements Management PA).
• Level of supporting documentary evidence will vary based on project size/duration. Larger projects may have minutes from estimation meetings, estimation teams, and tools use, etc. Smaller may have none. Assessment team will need to consense on the WBS elements that will be expected.
Done
Local intranet

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Appraisal Summary

- **Strengths, Weaknesses, Planned Improvements**

View the CMMI (SE/SW/IPPD) Evaluation

List All Profiles | List By Unit | List By Practice: CMM CMMI | Add Profile | Edit Mode | View Mode | Help | Admin | H

Project Name:

Select the PA to View: PP Project Planning

CMMI Goal	Strength	Weakness	Planned Improvement
PP Goal: GG 1 **Achieve Specific Goals:** The process supports and enables achievement of the specific goals of the process area by transforming identifiable input work products to produce identifiable output work products.	Well established process for project planning, cost and size estimation, staff planning. Artifacts of planning process have been instrumental in the successful Corporate level Bid		
PP Goal: GG 2 **Institu Managed Process:** The p institutionalized as a ma process.			
PP Goal: GG 3 **Institu Defined Process:** The pr institutionalized as a de process.			
PP Goal: GG 4 **Institu Quantitatively Managed** The process is institutior a quantitatively manage process.			

PP CMMI Compliance Matrix

Practice	GG 1	GG 2	GG 3	GG 4	GG 5	SG 1	SG 2	SG
PP-SP-1.1-1: Estimate the Scope of the Project						95		
PP-SP-1.2-1: Establish Estimates of Work Product and Task Attributes						84		
PP-SP-1.3-1: Define Project Life Cycle						94		
PP-SP-1.4-1: Determine Estimates of Effort and Cost						87		
PP-SP-2.1-1: Establish the Budget and Schedule							90	
PP-SP-2.2-1: Identify Project Risks							85	
PP-SP-2.3-1: Plan for Data Management							83	
P-SP-2.4-1: Plan for Project Resources							89	

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Action Items

- **Action item tracking**
  - **Includes AI number, description, type by EPG or project, assignment, date opened, date closed.**

View CMMI Action Items By Project

List All Profiles | List By Unit | List By Practice: CMM CMMI | Add Profile | Edit Mode | View Mode | Help | Admin | Home

Project Name: Training System

Practice	AI ID	AI Desc	AI Resolution	AI Type	Assigned To	Open Date
PP-SP-2.3-1	061102-02	Develop data management plan.	Draft has been developed by Sukanta. 12/06/02: Document has been approved by the PCRB.	Project_AI		6/11/02
PP-SP-2.6-1	061102-03	Develop a stakeholder involvement plan	Stakeholder Relationship Management Plan was developed and approved by program personnel. See PCRB meeting minutes.	Project_AI		6/11/02
PP-GP-3.1	08202002-04	Perform process evaluation for SER-021.	11/26/02: performed evaluation of SER-021.	Project_AI		08/20/02
PMC-SP-1.4-1	061102-04	Provide sample Data Management Plan.		EPG_AI		6/11/02
PMC-SP-1.5-1	061102-05	Revise stakeholder plan to define how monitoring will occur.	11/25/02: Reviewed the monitoring stakeholder involvement section of the plan. It needs to be more specific on how monitoring will occur, e.g., monitor meeting invitee and document distribution lists against what is asked for in the plan. 12/06/02: Stakeholder plan has been updated and approved by PCRB. QA will check that plan is being followed.	Project_AI		6/11/02

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Appraisal Reports

- **Goal Compliance**
  - **Color-coded appraisal information**

View CMMI (SE/SW/IPPD) Goal Compliance

List All Profiles | List By Unit | List By Practice: CMM CMMI | Add Profile | Edit Mode | View Mode | Help | Admin | Home

Project Name: Evaluation Projects

PA	Generic Goals					Specific Goals			
	GG 1	GG 2	GG 3	GG 4	GG 5	SG 1	SG 2	SG 3	SG
PROCESS MANAGEMENT									
Organizational Process Focus	100	100	95		100	97	98		
Organizational Process Definition	90	97	91		100	92			
Organizational Training	100	99	95		100	93	97		
Organizational Process Performance	100	99	93			100			
Organizational Innovation and Deployment	95	98	96			92	90		
PROJECT MANAGEMENT									
Project Planning	97	98	93			99	95	100	
Project Monitoring and Control	99	97	93	98		98	100		
Supplier Agreement Management	98	97	94			99	98		
Integrated Project Management (IPPD)	92	96	92			91	98	100	

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Appraisal Reports

- **Aging Report**
  - **Shows 3, 6, 9 month aging.**

View CMMI Aging Report As Of 8/19/03

List All Profiles | List By Unit | List By Practice: CMM CMMI | Add Profile | Edit Mode | View Mode | Help | Admin | Hon

Project Name: Training System

PA	No Date	MONTHS 0 - 3	3 - 6	6 - 9	> 9	Tot
ALL	0%	65.41%	31.35%	3.24%	0%	100
PROCESS MANAGEMENT						
Organizational Process Focus	0%	58.33%	37.5%	4.17%	0%	100
Organizational Process Definition	0%	27.27%	36.36%	36.36%	0%	100
Organizational Training	0%	37.5%	29.17%	33.33%	0%	100
Organizational Process Performance	0%	100%	0%	0%	0%	100
Organizational Innovation and Deployment	0%	85%	15%	0%	0%	100
PROJECT MANAGEMENT						
Project Planning	0%	80.65%	19.35%	0%	0%	100
Project Monitoring and Control	0%	100%	0%	0%	0%	100
Supplier Agreement Management	0%	70.83%	29.17%	0%	0%	100
Integrated Project Management (IPPD)	0%	83.33%	16.67%	0%	0%	100
Risk Management	0%	54.17%	45.83%	0%	0%	100

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Appraisal Reports

- **Automated PIIDs generation**
  - **Exportable, Editable document**

Northrop Grumman Information Technology
Defense Mission Systems

Project:	Training System		
Process Area			
Goal:	*OPF-SG 1 - **Determine Process Improvement Opportunities:** Strengths, weaknesses, and improvement opportunities for the organization's processes are identified periodically and as needed.*		
Practice ID	*OPF-SP-1.1-1 - Establish Organizational Process Needs*		
Process	**Organizational:**	**Project Planning:**	**Project Implementation:**
OSSP/PDP	IT Sector Command Media: • LP-B101 *Planning* is a corporate-level policy that covers LRSP and AOP development. IEP: • E121 *Organizational Process Focus* => Task 1.0: Establish Organizational Process Needs	**DMS EPIP** • Section 2.2 *Objectives* establishes OSSP process objectives relevant to the DMS business environment.	The CSS EPIP has been developec approved for use on projects withir OU. Refer also to ASWA Quality Manua establish ISO 9001-2000 requirem for OC.
PII Type	**Direct Artifact:**	**Indirect Artifact:**	**Affirmations:**
Implementation Evidence	• D: (OPF-001) DMS AOP (*DMS 2003-2004AOP Version 2002-10-24A.doc*) • D: (OPF-002) DMS EPIP (*DMS-EPIP-CY2003.doc*) • D: (OPF-004) CSS EPIP (*CSS-OU-EPIP-2003-final.doc*) • D: (OPF-005) C3IS EPIP (*C3IS-EPIP-2003_Ver_1.0_3-31-03_Approved.doc*) • D: (OPF-006) CST EPIP (*SET-EPIP-21+Feb+2003.doc*) • D: (OPF-007) SIS EPIP: (*SIS EPIP 2003-v1.03.doc*) • D: ASWA Quality Manual	• I: (OPF-005) EPI Planning is included as part of the AOP Goals for the Operating Units as well as the Business Units. See the e-mail summary of the C3IS AOP Planning session. (C3IS AOP Offsite Results.rtf) • I: (OPF-025) DMS EPG NetMeeting documentation	• A: See the OID Charter (DMS-O WGC07v18.doc) • A: See the OPP Charter (DMS-C WGC02-v11.doc)
Example Evidence	• D: [1. Organization's process needs and objectives]	• I: Characterization of current organization processes (processes	

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Agenda

- **Organizational Context**
  - **4 minute**
- **Internal Appraisal Program**
  - **5 minutes**
- **Internal Appraisal System**
  - **15 minutes**
- **Summary**
  - **5 minutes**
- **Backup Slides**
  - **1 minute**

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Appraisal System Benefits - Rewards Outweigh the Risks

- **Confidentiality of the Appraisal Data**
  - **Approved by the DMS ISG**
  - **Data is not completely confidential**
  - **Cumulative data and color charts demonstrate progress**
- **Users who don't understand the CMM / CMMI**
  - **Retrain on the CMM / CMMI**
  - **Remove their password**
  - **Appraisers control the scoring**
- **Users have access across multiple projects**
  - **Allows reuse of appraisal information and examples of compliance success**
  - **Inactive projects are archived in the database**
- **Legacy projects**
  - **Added to the Archive or removed with data saved offline**
  - **Extract data through PIID download**

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Appraisal Dynamics

- **Single Conference Room, one projector**
  - **One presentation driver, with many participants**
  - **Allows group participation and a common focus**
- **Single Conference Room, Single Hub**
  - **Many appraisal system users at the same time**
  - **Allows simultaneous recording of information in group interviews**
  - **Breakout sessions can run concurrently**
- **Multiple Locations, NetMeeting access**
  - **Remote access from multiple users**
  - **Reduces travel costs**
  - **Complicates objective evidence review**
- **All situations improve direct participation**

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Lessons Learned

- **Downtime is not good**
  - **Traveling internal appraisers need access**
  - **Paper backup has served in some cases**
  - **Offline version planned for the future**

- **Presentations are still needed**
  - **Automated Outbrief needed**
  - **Downloads to PowerPoint of key reports and data**

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Summary

- **The Appraisal System is a supported development project and integrated with other DMS systems**
- **The Appraisal System aggregates and accumulates the data and scores**
- **Projects are actively involved in the appraisal data collection activity**
- **Compliance lessons learned are transferred immediately between projects**
- **Appraisers have control over scoring and evaluation results**
- **Administrator has control over the system, appraisers, and users**

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Questions ?